



GOLDHABER RESEARCH ASSOCIATES, LLC

October 26, 2006

Jeffery D. Ubersax, Esq.
Jones Day
North Point
901 Lakeside Avenue
Cleveland, OH 44114

Re: Genereux v. Brush Wellman

Dear Mr. Ubersax:

With regards to the above referenced matter, I have reviewed materials that include the following:

1. Depositions of:
 - S. Genereux
 - C. Balint
 - A. Broadbent
 - J. McCarthy
 - M. Kolanz
2. Exhibits to depositions
3. Brush Wellman correspondence, warnings and industrial hygiene documents provided to Raytheon
4. Expert report of J. Martyny
5. Affidavit of W. Hartford

Based upon my review of these materials and my research, training and expertise in the area of organizational and safety communication and warnings (as evidenced in the attached Curriculum Vitae, List of Recent Testimony and Current Fee Schedule), I have arrived at the following opinions:

1. Brush Wellman's warnings and safety communications were more than adequate to warn Raytheon of the hazards associated with exposure to beryllium (Be), including CBD.
 - a) Brush Wellman's message was clear, repetitive and consistent with the best scientific knowledge available at the time of its warnings and safety communications.

- b) Brush Wellman's communication strategy included, in the best traditions of effective organizational communication, the use of credible information sources, multiple channels (i.e., oral, written and mediated) and ample opportunities for feedback. (See attached Communication Model.)
- c) Brush Wellman's safety and warnings program at its inception was especially noteworthy given the state-of-the-art for communicating warnings in the 1950's and 1960's. During that period of time, the warnings literature had barely evolved and very few companies were even aware of the role of warnings, let alone placing warnings on their products or giving them to customers. Further, extremely few government regulations and industry standards existed governing safety warnings. Given the state-of-the-art in the 1950's and 1960's about warnings and safety communications, Brush Wellman's program was indeed groundbreaking and highly commendable for that period of time. Brush Wellman's commitment to a state-of-the-art safety communication program has continued to the present. (See attached chart regarding state-of-the-art warnings in the 1950's compared with today.)
- d) Brush Wellman's overall warnings and safety communication program for its customers was well planned and combined written (e.g., labels, letters, articles and papers, bibliographies and MSDS', etc.), oral (e.g., meetings, visits) and mediated (e.g., slide-tape shows, videotapes) channels of communication to deliver a consistent message that workers exposed to Be were at risk of contracting CBD, a serious lung disease.
- e) As early as 1960, Brush Wellman communicated this risk to Raytheon using many communication vehicles including the following:
 - 1. Warning labels on its products and their packaging about the toxicity of Be.
 - 2. Caution letters and statements about current knowledge of the toxicity of Be including specific letters to Raytheon recommending against the sandblasting of Be because sandblasting could "generate airborne beryllium levels above the occupational standard."
 - 3. Brush Wellman brochure "Safe Handling of Be Ceramics".
 - 4. Brush Wellman pamphlet "Be Ceramics and How to Handle Them"
 - 5. AIHA Hygienic Guide Series "Be and Its Compounds"
 - 6. Training meetings at Raytheon with Brush Wellman personnel regarding Be hazards and control methods.
 - 7. MSDS' for Be

8. Warnings on purchase orders and in sales literature.
 9. Assorted articles from health/safety literature about Be's hazards.
 10. High Velocity-Low Volume Ventilation Systems
 11. "Health Effects of Beryllium and its Components"
 12. Be exposure paper by Martin Powers
 13. Assorted telephone calls between Brush Wellman and Raytheon concerning Be hazards.
 14. Meeting in New York City (1962) of Raytheon and Brush Wellman Industrial Hygiene personnel.
 15. Videotape for customers' employees "Working Safety with Be"
2. Raytheon was informed by Brush Wellman, the government and the scientific literature about the hazards associated with Be and either communicated or should have communicated this information to the employees of Raytheon.
- a) Raytheon, since 1960, has had Be control procedures in place to address the hazards of Be.
 - b) Raytheon's safety and warnings program was especially noteworthy as designed, given the state-of-the-art for communicating warnings in the 1950's and 1960's when their program was initiated.
 - c) However, if the testimony of the plaintiff and her co-workers is accurate, Raytheon apparently violated its own procedures by:
 1. Allowing sandblasting to occur in a non-authorized area.
 2. Allowing workers, including the plaintiff, to engage in sandblasting without adequate respiratory equipment or training.
 3. Allowing sandblasting to occur without appropriate hygiene procedures in place, resulting in an area that accumulated a lot of dust.
 4. Allowing workers to sandblast Be without appropriate medical monitoring.
 5. Not training employees engaged in Be sandblasting on the hazards of Be.
 6. Not providing special clothing to employees engaged in sandblasting.
 - d) It is not Brush Wellman's responsibility to monitor Raytheon's safety program. It is the employer's responsibility, as mandated by OSHA, to provide a safe workplace for its employees and to communicate hazardous information to all employees.

- e) Plaintiff's expert, Dr. Martyny, has opined it is a fault of Brush Wellman's warnings that they did not reach all relevant Raytheon employees. This is not Brush Wellman's responsibility, as mentioned above (see opinion 2d). Further, it is an OSHA mandate since 1970 that employers communicate all necessary hazard and safety warnings to employees. Not only is this statutory but as shown in 2f below, it is effective communication. Further, Raytheon's own policy was to remove Brush Wellman's label and replace it with their own "red tag" label that also warned about exposure to Be, thus rendering Dr. Martyny's opinion moot.
- f) Raytheon's communication and safety warnings effort should have been effective due to the use of close and immediate sources of communication which combined the efforts of the employer and the immediate supervisors. Research conducted by me and others in the field of organizational communication (see attached bibliography) has concluded that the most effective organizational communications to employees are from those sources closest to them such as immediate supervisors.
- g) "Distance theory" (as discussed in my textbook, "Organizational Communication", a potential trial exhibit) predicts that the more distant the source is from the receiver, the less likely the communication will be effective. The converse is true, which predicts likely success for employer/supervisor channels of communication.
- h) The testimony of Raytheon employees, along with several supporting documents, signage, videotapes and meetings, make it abundantly clear that Raytheon understood the components of an effective communication program which, if implemented, would have included the following:
 1. Orientation Training Program regarding Be hazard (includes written statement of hazards)
 2. Ongoing safety training/meetings regarding Be hazards and lung disease
 3. Raytheon's written procedures about Be and its proper handling
 4. Warning labels on Be packages
 5. Be warning signs posted
 6. Videotapes about Be hazards and safety rules/procedures
 7. Raytheon's Training Program about Be and its hazards
 8. Collection of Air Sample Data
 9. Respiratory training
 10. MSDS' available
 11. Pamphlets on Be health hazard
 12. Protective clothing and hygiene procedures

3. If Raytheon had followed its written program and procedures about communicating the hazards of Be, it is highly likely that plaintiff would have been exposed to the information about Be hazards communicated by Raytheon. If these procedures were followed, the information would have been readily available to plaintiff as documented by the following:
 - a) Distance theory and the role of the immediate supervisor/employer and co-worker.
 - b) Testimony of plaintiff's supervisor, Al Broadbent
 - c) Testimony of industrial hygienist, James McCarthy
 - d) Orientation and continued Be safety training programs
 - e) Videotapes
 - f) Annual physical examinations
 - g) Be specifications regarding labeling and safety handling procedures.
 - h) Accessible MSDS'
 - i) Respiratory training
 - j) Hygiene and protective clothing procedure
 - k) Posted signs
 - l) Air sampling data

4. Additional warnings and safety information by Brush Wellman in all likelihood would not have conveyed any new information regarding Be hazards to either plaintiff or Raytheon. Raytheon already knew about Be hazards and the health and safety procedures needed to protect workers from those hazards. It is not likely that additional warnings and safety information about Be hazards would have changed the behavior of Raytheon or even reached the plaintiff because of Raytheon's policy of replacing Brush Wellman's label with its own "red tag" label. As the attached chart (and potential trial exhibit) clearly shows, awareness of safety hazards does not necessarily lead to the conduct of safe behavior.
 - a) Raytheon was already committed to a lower standard (0.5-1.0 ug/m or ALARA). Although plaintiff's expert, Dr. Martyny, has opined that Brush Wellman's MSDS' were inadequate because they communicated about an "excessive" exposure to Be, Brush Wellman only referenced the OSHA standard and further, this point is rendered moot by Raytheon's commitment to ALARA. Plaintiff's own expert, Dr. Martyny, has opined that Raytheon has exposed its employees to airborne Be above the OSHA standard. This indicates Raytheon has violated Brush Wellman's warnings, OSHA warnings and Raytheon's own commitment to ALARA. Further, Raytheon (as pointed out in 2b-1 above) allowed sandblasting of Be to occur, thus violating additional Brush Wellman warnings. As the

warnings literature clearly points out (see attached bibliography on the ineffectiveness of warnings), if one violates a series of warnings, it isn't likely they will follow additional warnings.

- b) Plaintiff, according to her supervisor, had refused to wear a respirator because it was too hot.

It is my overall opinion, therefore, that the warnings and safety information provided by Brush Wellman to Raytheon was adequate to warn them about the hazards of Be. Raytheon, having been informed of the dangers of Be by Brush Wellman and other sources, should have conveyed this information to its employees. It is not likely that additional warnings and safety information would have conveyed anything to the plaintiff or Raytheon that they either didn't already know or should have known from all of the above-cited channels of communication.

In fact, as a communication expert and consultant to some of the largest companies both in the United States and abroad, I would rate Brush Wellman's overall safety communications program for its customers, from inception to the present, as exemplary and among the best that I have ever evaluated, especially given the state-of-the-art for warnings and safety communications in the 1950's and 1960's when Brush Wellman first initiated its customer safety communication program.

I reserve the right to supplement this report should my review of additional discovery materials so warrant.

Cordially,



Gerald M. Goldhaber, Ph.D.
President

GMG/dlp